

Heat-Caused & Heat-Related Deaths in Arizona by Year (2011-2021)

Deaths from Exposure to Excessive Natural Heat		
Year	Heat – Caused Deaths	Heat – Related Deaths
2011	123	177
2012	97	157
2013	103	149
2014	48	91
2015	83	132
2016	146	219
2017	132	264
2018	129	251
2019	160	283
2020	313	522
2021	302	552

Heat-caused deaths are deaths where the primary cause of death is listed as exposure to excessive natural heat. **Heat-related** deaths are deaths where exposure to excessive natural heat is listed anywhere on the death record and include those that were heat-caused.



ARIZONA DEPARTMENT
OF HEALTH SERVICES

Health and Wellness for all Arizonans

Heat-Caused Deaths Summary 2011-2021

		Total	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
State or Country of Residence	Arizona Resident	1044	57	53	56	32	42	98	105	92	117	207	185
	Non-Arizona Resident	592	66	44	47	16	41	48	27	37	43	106	117
Geographic Region of Occurrence	Central Counties	829	61	55	45	27	39	69	67	76	101	161	128
	Northern Counties	170†	7	0	13	*	*	12	33	19	23	54	66
	Southern Counties	558	55	41	45	18	39	60	32	34	34	95	105
	Western Counties	20†	0	*	0	0	*	*	0	0	*	*	*
Race/Ethnicity	American Indian/ Alaskan Native	60†	*	*	6	0	0	0	11	6	6	11	13
	Asian or Pacific Islander	20†	0	*	0	0	*	*	*	*	*	*	*
	African American/Black	80†	6	*	6	*	*	*	*	7	9	20	21
	Hispanic/Latino	548	59	43	43	16	32	52	28	35	41	90	109
	White Non-Hispanic	822	53	46	48	28	44	81	77	70	74	152	149
	Unknown	110†	0	0	0	*	*	10	12	10	26	37	7

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.

Classification of geographic regions: Central = Gila, Graham, Maricopa, Pinal, and Yavapai; Eastern = Greenlee; Northern = Apache, Coconino, Mohave, and Navajo; Southern = Cochise, Pima, Santa Cruz, and Yuma; Western = La Paz.



Health and Wellness for all Arizonans

Heat-Related Deaths Summary 2011-2021

		Total	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
State or Country of Residence	Arizona Resident	2066	108	109	96	74	88	165	227	187	220	378	414
	Non-Arizona Resident	731	69	48	53	17	44	54	37	64	63	144	138
Geographic Region of Occurrence	Central Counties	1909	108	106	86	66	86	135	193	193	214	357	365
	Northern Counties	265†	10	*	16	7	*	17	34	20	25	58	69
	Southern Counties	602	57	47	47	18	40	62	36	38	41	102	114
	Western Counties	20†	*	*	0	0	*	*	*	0	*	*	*
Race/Ethnicity	American Indian/ Alaskan Native	123	8	8	9	0	0	0	16	11	11	28	32
	Asian or Pacific Islander	30†	*	*	0	*	*	*	6	*	*	*	*
	African American/Black	180†	9	*	12	6	*	7	11	16	20	38	55
	Hispanic/Latino	732	68	54	51	20	36	62	44	56	63	126	152
	White Non-Hispanic	1520	91	88	77	57	82	134	160	140	144	251	296
	Unknown	207	0	0	0	7	6	14	27	27	40	74	12

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.

Classification of geographic regions: Central = Gila, Graham, Maricopa, Pinal, and Yavapai; Eastern = Greenlee; Northern = Apache, Coconino, Mohave, and Navajo; Southern = Cochise, Pima, Santa Cruz, and Yuma; Western = La Paz.



Health and Wellness for all Arizonans

Heat-Caused & Heat-Related Deaths in Arizona Residents by Year (2011-2021)

Deaths from Exposure to Excessive Natural Heat

Year	Heat – Caused Deaths		Heat – Related Deaths	
	Count	Rate (per 100,000)	Count	Rate (per 100,000)
2011	57	0.9	108	1.7
2012	53	0.8	109	1.7
2013	56	0.8	96	1.4
2014	32	0.5	74	1.1
2015	42	0.6	88	1.3
2016	98	1.4	165	2.4
2017	105	1.5	227	3.2
2018	92	1.3	187	2.6
2019	117	1.6	220	3.0
2020	207	2.9	378	5.3
2021	185	2.5	414	5.8

Heat-caused deaths are deaths where the primary cause of death is listed as exposure to excessive natural heat. **Heat-related** deaths are deaths where exposure to excessive natural heat is listed anywhere on the death record and include those that were heat-caused.

Rates calculated here use the [2020 Vintage estimates from US Census](#) for 2011-2019; [Vintage 2021 estimates from US Census](#) were used to calculate rates for 2020-2021.



ARIZONA DEPARTMENT
OF HEALTH SERVICES

Health and Wellness for all Arizonans

Heat-Caused Deaths Summary 2011-2021

		Total	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Age Group (years)	Less than 1	10†	0	*	*	*	*	*	*	0	*	*	*
	1 – 4	10†	0	0	0	0	*	0	*	0	*	*	0
	5 -14	10†	0	0	0	0	*	*	0	*	*	*	*
	15 - 24	130†	12	*	17	*	11	11	*	7	10	24	26
	25 - 34	218	26	14	9	6	9	22	19	19	17	31	46
	35 – 44	212	22	18	12	7	14	18	9	16	16	39	41
	45 – 54	220†	17	17	19	*	10	14	20	16	17	48	38
	55 – 64	261	16	14	10	7	14	31	19	19	28	61	42
	65 – 74	240†	*	12	*	8	14	16	24	32	25	47	51
	75 – 84	200†	8	10	11	*	*	14	23	16	24	44	40
	85+	90†	10	*	6	*	*	12	7	*	14	14	16
	Missing Age	40†	7	*	12	*	*	*	*	0	*	0	0
	Gender	Female	399	26	23	20	16	18	43	41	25	37	74
Male		1237	97	74	83	32	65	103	91	104	123	239	226
Unknown		0	0	0	0	0	0	0	0	0	0	0	0

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



ARIZONA DEPARTMENT
OF HEALTH SERVICES

Health and Wellness for all Arizonans

Heat-Related Deaths Summary 2011-2021

		Total	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Age Group (years)	Less than 1	10†	0	*	*	*	*	*	*	0	*	*	*
	1 – 4	10†	0	*	0	0	*	0	*	0	*	*	*
	5 -14	10†	*	0	0	0	*	*	0	*	*	*	*
	15 - 24	150†	13	*	17	*	13	11	6	8	13	28	32
	25 - 34	317	27	18	9	9	15	24	31	26	26	50	82
	35 – 44	364	25	20	20	11	19	27	23	31	31	80	77
	45 – 54	437	28	26	25	14	15	25	44	40	49	88	73
	55 – 64	554	29	27	23	14	27	54	48	53	57	118	104
	65 – 74	419	15	23	17	14	24	30	42	57	43	67	87
	75 – 84	332	20	21	14	9	8	25	45	28	36	64	62
	85+	150†	12	13	10	10	*	15	17	7	18	22	20
	Missing Age	50†	7	*	13	*	*	*	*	0	*	0	*
	Gender	Female	661	41	46	27	21	35	58	77	53	66	116
Male		2136	136	111	122	70	97	161	187	198	217	406	431
Unknown		0	0	0	0	0	0	0	0	0	0	0	0

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



ARIZONA DEPARTMENT
OF HEALTH SERVICES

Health and Wellness for all Arizonans

Heat-Caused Deaths Summary 2011-2021

		Total	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Substance Use	Alcohol Use	120†	*	10	8	*	*	16	12	13	13	22	19
	Drug Use	160†	*	*	*	6	*	7	8	12	30	54	33
	Combined Alcohol and Drug Use	20†	*	*	0	0	*	0	*	*	0	*	*
	No Substance Use	1335	114	83	92	39	74	123	110	101	117	234	248
Years in Arizona	<3 years	150†	15	8	10	6	12	20	*	12	11	27	23
	3-9 years	100†	6	6	8	*	*	12	*	16	14	21	10
	10-19 years	110†	15	9	8	*	6	13	*	7	13	16	12
	+20 years	407	30	27	24	18	22	49	16	44	39	78	60
	Unknown/None	870	57	47	53	14	39	52	108	50	83	171	197

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



ARIZONA DEPARTMENT
OF HEALTH SERVICES

Health and Wellness for all Arizonans

Heat-Related Deaths Summary 2011-2021

		Total	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Substance Use	Alcohol Use	273	16	18	18	10	12	28	29	25	30	38	49
	Drug Use	655	11	13	12	18	15	33	57	65	91	176	164
	Combined Alcohol and Drug Use	70†	*	*	*	*	8	*	*	9	*	9	19
	No Substance Use	1801	148	123	117	59	97	155	174	152	157	299	320
Years in Arizona	<3 years	223	19	12	15	9	15	26	14	23	20	35	35
	3-9 years	190†	9	10	12	10	11	25	*	22	27	39	25
	10-19 years	206	17	20	13	12	7	18	11	20	26	34	28
	+20 years	910	64	66	49	43	52	82	47	96	94	151	166
	Unknown/None	1261	68	49	60	17	47	68	188	90	116	263	298

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



ARIZONA DEPARTMENT
OF HEALTH SERVICES

Health and Wellness for all Arizonans

Heat-Caused Deaths Summary 2011-2021

		Total	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
County of Occurrence	Apache	0†	*	0	*	0	0	0	0	*	0	0	0
	Cochise	30†	0	0	*	0	*	*	*	*	*	8	9
	Coconino	30†	*	0	*	*	*	0	8	*	*	*	*
	Gila	10†	*	0	*	0	0	*	*	*	*	*	0
	Graham	0†	0	*	0	0	0	0	0	0	0	*	*
	Greenlee	0	0	0	0	0	0	0	0	0	0	0	0
	La Paz	20†	0	*	0	0	*	*	0	0	*	*	*
	Maricopa	729	54	50	35	21	32	64	59	68	88	143	115
	Mohave	190†	*	0	7	*	*	11	25	15	21	49	59
	Navajo	10†	0	0	0	0	0	*	0	0	0	*	*
	Pima	381	49	35	38	13	28	45	26	25	25	44	53
	Pinal	60†	6	*	*	*	*	*	*	*	12	11	8
	Santa Cruz	30†	*	0	*	*	*	*	0	*	0	7	12
	Yavapai	20†	0	*	*	*	*	*	*	*	0	*	*
	Yuma	120†	*	6	*	*	7	12	*	*	8	36	31

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



ARIZONA DEPARTMENT
OF HEALTH SERVICES

Health and Wellness for all Arizonans

Heat-Related Deaths Summary 2011-2021

		Total	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
County of Occurrence	Apache	10†	*	0	*	0	0	0	0	*	0	0	*
	Cochise	30†	0	0	*	0	*	*	*	*	*	8	9
	Coconino	40†	*	*	*	*	*	0	9	*	*	6	*
	Gila	20†	*	0	*	0	*	*	*	*	*	*	*
	Graham	10†	0	*	0	0	0	0	*	0	0	*	*
	Greenlee	0	0	0	0	0	0	0	0	0	0	0	0
	La Paz	20†	*	*	0	0	*	*	*	0	*	*	*
	Maricopa	1731	98	100	75	60	77	127	171	175	190	322	336
	Mohave	210†	*	0	8	*	*	14	25	16	21	51	60
	Navajo	10†	*	*	*	*	0	*	0	0	0	*	*
	Pima	411	50	37	39	13	29	46	28	28	32	50	59
	Pinal	130†	9	*	6	*	*	*	17	15	22	27	20
	Santa Cruz	30†	*	0	*	*	*	*	0	*	0	7	12
	Yavapai	30†	0	*	*	*	*	*	*	*	*	*	*
	Yuma	140†	6	10	*	*	7	13	7	*	8	37	34

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



ARIZONA DEPARTMENT
OF HEALTH SERVICES

Health and Wellness for all Arizonans

Heat-Caused Deaths Summary 2011-2021

		Total	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Month of Occurrence	January	0†	*	0	0	0	0	0	0	0	*	0	0
	February	0	0	0	0	0	0	0	0	0	0	0	0
	March	10†	*	0	*	0	0	*	*	0	0	0	*
	April	20†	*	*	*	*	*	*	*	*	*	*	*
	May	70†	*	9	9	*	*	*	*	11	*	9	14
	June	392	27	24	30	12	32	52	49	16	20	30	100
	July	505	30	28	39	17	9	51	34	50	53	115	79
	August	424	39	26	14	7	34	26	22	28	53	122	53
	September	160†	15	6	6	*	*	8	9	20	19	26	41
	October	40†	*	*	*	*	*	*	*	*	*	9	8
	November	10†	*	*	*	*	*	*	*	*	0	0	*
	December	0†	0	0	0	0	0	0	0	*	0	0	*

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



ARIZONA DEPARTMENT
OF HEALTH SERVICES

Health and Wellness for all Arizonans

Heat-Related Deaths Summary 2011-2021

		Total	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Month of Occurrence	January	0†	*	0	0	0	0	0	0	0	*	0	0
	February	0†	*	0	0	0	0	0	0	0	*	0	0
	March	10†	*	0	*	*	*	*	*	0	0	0	*
	April	30†	*	*	*	*	*	*	*	*	*	*	*
	May	120†	*	13	10	*	*	*	9	17	7	21	25
	June	617	37	32	41	20	42	80	83	28	35	46	173
	July	974	48	43	67	35	27	76	92	97	110	225	154
	August	726	58	52	18	17	48	42	45	68	85	178	115
	September	253	20	11	8	10	7	10	17	35	32	36	67
	October	50†	*	*	*	*	*	*	*	*	6	12	9
	November	20†	*	*	*	*	*	*	*	*	*	0	*
	December	10†	0	*	0	0	0	0	0	*	0	0	*

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of visits related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



ARIZONA DEPARTMENT
OF HEALTH SERVICES

Health and Wellness for all Arizonans

Heat-Caused Deaths Summary 2011-2021

		Total	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Place of Injury	Home	425	23	21	20	8	9	37	44	39	45	91	88
	Other Specified	1053	92	63	78	31	65	96	75	75	99	193	186
	Residential Institution	10†	0	0	0	0	0	*	*	*	*	0	*
	Street/Highway	50†	*	*	*	*	*	*	*	6	8	10	9
	Trade & Service Area	10†	0	0	0	0	0	0	*	*	0	*	*
	Unknown	100†	*	10	*	7	7	9	10	7	7	17	15

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.



ARIZONA DEPARTMENT
OF HEALTH SERVICES

Health and Wellness for all Arizonans

Heat-Related Deaths Summary 2011-2021

		Total	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Place of Injury	Home	786	45	42	35	18	20	69	88	71	84	144	170
	Other Specified	1659	112	87	96	63	88	130	131	142	173	313	324
	Residential Institution	10†	0	0	0	0	0	*	*	*	*	0	*
	Street/Highway	110†	*	*	*	*	*	*	6	13	13	32	26
	Trade & Service Area	10†	0	0	0	0	0	0	*	*	0	*	*
	Unknown	222	17	25	15	8	20	14	36	22	12	29	24

Notes: † Sum rounded to nearest tens unit due to non-zero addend less than 6; * Number of deaths related to exposure to excessive natural heat were suppressed due to non-zero count less than 6.

Methods

ICD-10 Codes	Description
T67.0	Heat stroke and sunstroke
T67.1	Heat syncope
T67.2	Heat cramps
T67.3	Heat exhaustion from water depletion
T67.4	Heat exhaustion from salt depletion
T67.5	Heat exhaustion, unspecified
T67.6	Heat fatigue, transient
T67.7	Heat edema
T67.8	Other specified heat effects
T67.9	Unspecified effects of heat and light
X30	Exposure to excessive natural heat

- Criteria adapted from Council of State & Territorial Epidemiologists (CSTE)
- Methods search entire death record for ICD-10 codes
- ICD codes related to man-made sources of heat were excluded
- Substance use codes (ICD-10) for alcohol-and drug-related deaths are defined by [ADHS Population Health and Vital Statistics Diagnostics Categories](#)

